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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PAMTBA242	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US01/49721	International filing date (day/month/year) 20/12/2001	Priority date (day/month/year) 20/12/2001
International Patent Classification (IPC) or national classification and IPC D21H19/38		
Applicant MINERALS TECHNOLOGIES INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 07/07/2003	Date of completion of this report 17.09.2003
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Naeslund, P Telephone No. +49 89 2399 8614 

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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
- Description, pages:**

1-13 as originally filed

Claims, No.:

1-24 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

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(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1-24
	No:	Claims	NONE
Inventive step (IS)	Yes:	Claims	1-24
	No:	Claims	NONE
Industrial applicability (IA)	Yes:	Claims	1-24
	No:	Claims	NONE

2. Citations and explanations
see separate sheet

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Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The application relates to a paper coating pigment/a calcium carbonate product for use in coating compositions to provide a surface finish having high sheet gloss which includes a blend of first and second calcium carbonate particle compositions having a first and second particle size distribution and mean particle size; the first and second means having a difference of 0.1 - 0.2 micrometer. Also provided is a process for producing a coated paper having high gloss comprising the use of the pigment blend mixture in combination with a binder in a coating slurry which is coated on a paper followed by calendering of the paper after drying of the same.
2. US-A- 5 861 209 (see abstract and fig. 1 with corresponding parts in the description) cited in the application and in the international search report discloses aragonitic calcium carbonate pigment for coating paper including a multimodal particle size distribution. There is, however, no disclosure of two pigments, even less of such having different means.
EP-A- 0 768 344 (see page 5, line 10-line 33) cited in the international search report discloses a pigment composition for use in coating compositions comprising a mixture of pigments (e.g. PCC pigments). There is, however, no disclosure of two particle size distributions where the first and second means have a difference of about 0.1 to 0.2 micrometers.
EP-A 0 950 646 (see abstract; claims 1 and 4) cited in the international search report discloses a calcium carbonate mixture of two particle sizes. The difference in median diameter of the two size distributions, however, does not fall within the range of 0.1-0.2 micrometer. Moreover, this prior art is not related to paper coating.

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US-A- 5 731 034 (see abstract) cited in the international search report discloses a method of coating paper comprising the use of calcium carbonate pigments within the range applied according to the present application, however, not including two different qualities having two different means of the size distributions.

EP-A- 1 136 617 cited in the international search report discloses a use of calcium carbonate particles (PPC) in the range 0.5-5 micrometer, not for coating however, but for chemically loading fibers in a fiber suspension. There is, moreover, no disclosure of a second pigment blended with the first one and where the difference in means of the size distributions is 0.1 - 0.2 micrometer.

Therefore, none of the cited documents discloses all features of any of the independent claims 1,7,13,21 and 22; the requirements of Art. 33(2) PCT are fulfilled.

3. Closest prior art is seen in US-A- 5 861 209. Whereas this document discloses aragonitic calcium carbonate pigment for coating paper including a multimodal particle size distribution, there is no disclosure of two different particles having two different means of their size distributions, let alone a difference in such means of about 0.1 - 0.2 micrometer. Whilst there are documents cited (D2 and D3) where mixtures of pigments, inter alia of calcium carbonate and exhibiting different size distributions are suggested for coating compositions for paper, none of these documents discloses or suggests mixtures having a difference in means of about 0.1-0.2 micrometer. In view thereof as well as the improved effects (in particular as to sheet gloss) obtained, as illustrated by the comparative examples in the description of the present application, an inventive step can be acknowledged. Thus claims 1,7,13,21 and 22 also fulfil the requirements of Art. 33(3) PCT.
4. The dependent claims refer to preferred embodiments and should therefore also meet the requirements of Art. 33(2) and (3) PCT.
5. For the assessment of the present claims on the question whether they

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are industrially applicable, no particular reasoning would appear necessary to give. The industrial application would appear to be evident (Art. 33(4) PCT).